

DETERMINING THE APPROPRIATE STAFFING MODEL

Determining the Appropriate Staffing Model for the Owasso Fire Department

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CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed: _____

Abstract

Owasso, Oklahoma has experienced a growth rate that continues to challenge the fire department. Prior to the recession, Owasso Fire Department (OFD) planned on building and staffing a fourth station to protect the Southeast portion of the city. Because the need remains immediate, work must continue to bring these plans to fruition. The problem is that the fire department has not identified the most appropriate staffing model to staff the new station, given the current economic conditions.

The purpose of this research was to identify the most appropriate staffing model for OFD as part of the plan for the fourth station. Research included both historical and evaluative methodologies to answer the following research questions: How much does it cost to hire a new firefighter? Is there a fiscal benefit to paying overtime in lieu of hiring additional firefighters to fill staffing shortages? Would the operational staff support using overtime personnel in lieu of hiring additional firefighters to fill staffing shortages? What are the public relations costs of using overtime personnel in lieu of hiring additional firefighters to fill staffing shortages? Is there a risk to the health and safety of overtime firefighter(s), other on-duty firefighters, and the public when overtime staff is used to fill staffing shortages?

The literature offered compelling information regarding the fiscal benefits and negative effects of excessive overtime on both organization and workforce. Data analysis confirmed that it is less expensive to use overtime than it is to hire additional firefighters. Surveys identified that OFD employees are willing to work significant amounts of available overtime and the majority would rather have overtime than new personnel, while the questionnaires indicated that

there is considerable skepticism about the lifespan of such a strategy, pointing to the potential problems associated with overtime dependence.

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Determining the appropriate staffing model for the Owasso Fire Department

Introduction

Over the last twenty years, the City of Owasso, Oklahoma has experienced a rate of growth in population and land size that continues to challenge city services, including the community's fire department. City leadership strives to ensure that residents and visitors enjoy a clean, safe community with a high quality of life. To accomplish this vision, the city must employ enough public works employees, police officers, firefighter/paramedics, park and recreation employees, and administrative staff to do the work. Unfortunately, the community has grown faster than the city departments tasked with serving it.

As one would expect, the reason there is a gap between what resources the city needs to accomplish the vision and what resources the city currently fields is because of a reduction in revenue. As sales tax represents almost the entire revenue source for Oklahoma municipal governments, simply maintaining the existing level of service has become of paramount concern. While the City of Owasso has fared better than any other city in the region, the recession has changed any plan for immediate growth in city services into short-range (2-year to 5-year) strategic plans.

The Owasso Fire Department (OFD) provides fire protection and advanced life support ambulance service to the City of Owasso and the unincorporated areas surrounding the city. Over the past decade or so, the northernmost portion of the city experienced an increase in population and calls for service. Recently—within the last two years—residential development has increased in the southeastern area of the greater-Owasso region, and much of that area has

since undergone annexation into the city. This area is developing rapidly and, when fully built-out, will add an additional 10,000 residents to the city's population.

Prior to the economic downturn, the city planned on building and staffing a fourth fire station in 2011 to effectively protect the new annexed portion of the city; and, to improve fire/EMS coverage in the North side of the city, a fifth fire station 2 to 3 years after opening the fourth station. Because the need for additional resources remains high, the fire department must continue to work on bringing these plans to fruition as expediently as feasibly possible. The problem is that the fire department has not identified the most appropriate staffing model to staff the new station(s), given the current economic conditions.

The purpose of this applied research is to identify the most appropriate staffing model (Overstaffing Model versus the overtime-based Constant Staffing Model) for the Owasso Fire Department as part of the plan for the city's fourth, and eventually fifth, fire stations. Research included both historical and evaluative methodologies to answer the following research questions: How much does it cost to hire a new firefighter? Is there a fiscal benefit to paying overtime in lieu of hiring additional firefighters to fill staffing shortages? Would the operational staff support using overtime personnel in lieu of hiring additional firefighters to fill staffing shortages? What are the public relations costs of using overtime personnel in lieu of hiring additional firefighters to fill staffing shortages? Is there a risk to the health and safety of overtime firefighter(s), other on-duty firefighters, and the public when overtime staff is used to fill staffing shortages?

Research was conducted to identify: costs associated with hiring new firefighters in Owasso; compensation and benefits data; and the level of support for using a Constant Staffing

Model to staff future fire stations. Research involved a review of literature relating to the research subject, review of historical and current personnel records and reports, employee surveys and questionnaires, and scenario-based cost projections for comparative analysis.

Background and Significance

Located just north of Tulsa, Oklahoma, the City of Owasso is a growing community, with a population of around 35,000 and an incorporated land area of approximately 15 square miles. Because of the growth rate the city has experienced over the last decade—both in people and land size through annexation—the actual size of the city in terms of people and square miles is very dynamic. It is common practice in Owasso for officials to offer estimated figures for population and land size.

Established just after the start of the Twentieth Century, Owasso remained a small rural community for more than half of the century. About mid-century, the city began to develop into more of a bedroom community for Tulsa, yet the size of Owasso remained relatively small. Starting around 1990, Owasso began to establish itself as a self-supporting, full-service city, with primarily suburban characteristics.

Owasso is a City of Character. It (the community) is known for its small-town feel, award-winning schools, and low crime. People started moving to Owasso to raise their families in an environment where they felt safe, healthy, and happy. Unfortunately, the growth rate in population and land size is higher than the growth rate in city services; thus, the ability to maintain the level of city services that they require and expect, including fire protection and pre-hospital care (ambulance service), has already been lost.

The Owasso Fire Department is a career department with an authorized strength of 47 uniformed firefighters and one civilian. Of the 47 uniformed firefighters, five serve in executive or administrative capacities, with the remaining 42 personnel working in operations. The one civilian works as administrative support to the fire chief. The department provides fire protection and advanced life support ambulance service to the city and its environs. The fire response district encompasses approximately 50 square miles, while the ambulance district includes approximately 75 square miles. The city operates from three fire stations, with each fire station housing a pumper or quint, an advanced life support ambulance, and a wildland vehicle/brush truck. The headquarters station (Station #1) also houses the shift commander's vehicle, tanker (tender), reserve pumper, and reserve ambulance.

There are 14 positions assigned to each of the three shifts. The shift commander is quartered at Station #1, along with one captain, one driver, and three firefighter/paramedics. Stations #2 and #3 each have one captain, one driver, and two firefighter/paramedics assigned. For our three station department, minimum on-duty staffing is ten. The minimum staffing as identified in the collective bargaining agreement between the city and IAFF Local 2789 is three personnel at each station (one captain, one driver, and one firefighter/paramedic) and one shift commander (City of Owasso, 2009). Current policy allows for members to work out of class in the next highest position—a captain can work as a shift commander, a driver can work as a captain, and a firefighter/paramedic can work as a driver.

Whenever the department is operating with minimum staffing, it must employ an “either/or” response protocol from each of the three stations to maximize operational flexibility. This protocol dictates that if a call for service is received which requires a fire apparatus to handle, the personnel at the station respond in the pumper (or quint), and the ambulance at that

station becomes unavailable. Likewise, if the nature of the call for service is medical, the personnel respond in the ambulance, and the pumper (or quint) at that station becomes unavailable. Additionally, the protocol requires that the last available station serve as fire protection only, so that when the shift is operating with minimum staffing, anytime a third medical incident is received and only one station is available, mutual aid is requested from a private ambulance service or another fire department. Because OFD provides both fire protection and ambulance service, and the call volume is approaching 4,000 responses annually, the department is to a point where mutual aid assistance is frequently required to respond to incidents that OFD is unable to cover.

In addition to meeting emergency response responsibilities, the department operates under the Village Fire Company Concept, which places a fundamental emphasis on each station being an active part of the village (first-due district) it protects. The department is very involved in taking part in community events and activities, as well as meeting other operational obligations such as training, fire and life safety education presentations, and inspections and preplans—all of which are components of the Village Fire Company Concept. To be successful, each station must have time available to conduct the non-emergency activities, and the size of the first-due districts must be small enough so that effectively becoming part of the community is a realistic objective.

The shift schedule is 24 hours on/48 hours off. According to the collective bargaining agreement, as of March 1, 2010, three personnel are allowed off duty on vacation leave each shift, regardless of other circumstances (City of Owasso, 2009). This policy leaves one additional firefighter on duty to cover any vacancy created by sick leave before overtime has to be used to meet minimum staffing requirements.

At present, the department utilizes the Overstaffing Model to maintain minimum staffing requirements, with four additional positions per shift to cover vacation and sick leave. The Constant Staffing Model is being studied due to the potential for future costs savings by only employing the number of personnel necessary to meet minimum daily staffing obligations and by paying off-duty personnel overtime to fill staffing shortages as they arise.

As the city continues to grow, even in the midst of a recession, city leaders and fire administrators must work to identify the most appropriate way to improve service delivery as expediently as possible. The need for additional resources (staffed fire stations) is the fundamental solution to the service delivery problems; however, as the problem statement in the previous section identified, what has yet to be identified is the most appropriate staffing model to use to support the anticipated growth. In particular, would the Constant Staffing Model be cost effective enough to reduce the timeline for station #4, and perhaps station #5?

The relationship between this research and the National Fire Academy's Executive Analysis of Community Risk Reduction course is primarily rooted in emergency response interventions (the fifth of the five "Es"). The course's Student Manual reads: "There are risks that can be mitigated only by adding new emergency capability, or enhancing current emergency response capability" (FEMA, 2009, p.SM 3-37). The connection between research and the parent course is the effort to find a staffing solution that will help reduce the timeline for making fire station #4 (and #5) operational.

There are indirect relationships between the research and education and enforcement (the first and second of the five "Es"). As each fire station is tasked with taking ownership of its respective district—a fundament of the Village Fire Company Concept—it becomes solely

responsible for fire and life safety education and company-level fire inspections and preplanning within that district. By working toward fielding additional staff from additional fire stations and reducing the size of the individual response districts, the department also works toward increasing the organization's effectiveness in the realm of education and enforcement.

Literature Review

How much does it cost to hire a new firefighter?

Literature related to the cost of hiring a new firefighter varies in terms of specificity. As a matter of simple comparison, much of the information available merely referred to salary and benefits as the cost to hire a new firefighter. In her report to the County Board in Anne Arundel County, Maryland, the county auditor acknowledged that paying overtime costs less than hiring new firefighters because the county also has to include the cost of benefits for new employees (Hartley, 2004). Other sources also placed a heavy emphasis on the cost of benefits as a major contributor to current personnel costs. Articles in the *Orange County Register* (CA), the *Los Angeles Times* (CA), and the *LA Daily News* (CA) were more specific about the costs of employee benefits by referencing the soaring costs of pensions that, in some cases equate to almost 30 percent of the employee's base salary (Santana & Campbell, 2009; McGreevy, 2003; Kandel, 2009). In an applied research paper written by Steve Earley (2001), some specifics related to benefits were identified, and include: leave pay (vacation, sick, holiday), uniform allowance, work comp insurance, and a myriad of others that varies between employers.

A few individuals, however, focused greater attention of some of the costs that go overlooked during basic, superficial comparative analyses. Other ancillary hiring costs include hiring-related staff hours (in-kind costs), overtime hours, and payment for goods and services

related to advertising, recruitment, testing, interviewing, screening (medical and background), and processing prospective, and successful applicants (Earley, 2001; Solenberger, personal communication, December 8, 2009). According to Solenberger, a lot of costs get overlooked because they are part of someone's job responsibility; however, the staff hours spent on the hiring process are in-kind costs that must be considered as part of the cost of hiring new employees (personal communication, December 8, 2009).

Early (2001) referenced the cost of training new employees as part of the overall costs. The Insurance Services Office, Inc. (ISO) requires that each new firefighter receive 240 hours of documented recruit training and 40 hours of new driver training (Garrett, 2008). Additionally, it is the practice of OFD to have all new firefighter/paramedics trained and IFSAC certified to the level of Firefighter II and Hazardous Materials – Operations. While the ISO training can be accomplished in-house, the certification training must be done off site, and requires the use of additional funding to pay for travel expenses.

Is there a fiscal benefit to paying overtime in lieu of hiring additional firefighters to fill staffing shortages?

Research often yields unexpected results. In this case the literature review revealed a bit of irony about how the original version of the Fair Labor Standards Act was intended to encourage hiring and discourage overtime. In an article on forced overtime, the author wrote:

“There is an old union solidarity slogan that called working overtime in a time of high unemployment ‘scabbing on the unemployed.’ In fact, when the first federal overtime law—the Fair Labor Standards Act (FLSA)—was enacted in 1938 during the Great Depression and under pressure from organized labor, one of its goals was to

encourage companies to hire unemployed workers. Legislators assumed that employers would hire new workers rather than pay higher wages for overtime hours” (Bigler, 2002).

There is an abundance of literature that supports the fiscal benefit of using overtime to fill staffing shortages in lieu of hiring additional workers. The practice is neither new nor concentrated only in the fire service. In an article in *Monthly Labor Review*, the author points out that both employment and overtime increase following a recession, with overtime increasing before employment; however, since 1991, employers have relied more heavily on overtime than on hiring new staff (Hetrick, 2000). In that same article, Hetrick (2000) indicates that the practice is more often seen in industries that employ a highly-skilled workforce, adding that companies tend to avoid training new employees in these high-skill industries because of the cost. It seems logical that the fire service would avoid hiring new personnel for the same reason.

There was no document located that identified when or where the original practice started (within the fire service); however, city governments in California seem to have enjoyed much of the success of the Constant Staffing Model for some time. According to the United Firefighters of Los Angeles City (UFLAC), the City of Los Angeles introduced the practice of constant staffing more than three decades ago (UFLAC, 2009). Los Angeles City Fire Department’s staffing policy was implemented because it allowed for the control of fiscal and human resources by ensuring the exact number of personnel needed to operate were on duty, and by using overtime personnel to fill staffing shortages rather than hiring additional firefighters at a greater cost (UFLAC, 2009).

In good economic times, adequate funding for fire protection and ambulance service is difficult to secure. In a recession, budget dollars are a precious resource. The costs associated

with public safety continue to increase, while revenue sources dwindle; thus, any practice that stretches operating budgets—including overtime spending—is becoming an accepted administrative standard (Earley, 2001; City of San Diego, CA, 2008). In his research, Earley (2001) found that paying overtime in lieu of additional employees represented a savings of more than 13 percent for one large fire protection district. Orange County (CA) Fire Authority (OCFA) officials reported that it costs 25 percent less to fill a vacant position with overtime than it does with a new employee; adding, that because of soaring costs, avoiding new hires by using overtime is what is keeping budgets balanced in fire departments all across the country (Santana & Campbell, 2009).

In a business process reengineering (BPR) study of the San Diego (CA) Fire Department (SDFD) conducted by that city's auditor, the findings conclude that SDFD's staffing strategies were the most cost effective of all of the available staffing options (City of San Diego, 2008). That same report went on to acknowledge that because the fire department employed the Constant Staffing Model, the budgetary savings to the City of San Diego in Calendar Year 2006 was \$3 million (City of San Diego, 2008).

The San Diego report consistently reinforces the fiscal benefit of paying overtime versus hiring more full-time employees, and goes on to point out that a consultant in a neighboring jurisdiction developed the same conclusion about that jurisdiction's use of the Constant Staffing Model, and an audit of the Berkley (CA) Fire Department found the same basic conclusion (City of San Diego, 2008; Hogan, 2009). Bruce Martin, in an article written for *Fire Chief* recognizes that using overtime personnel in lieu of hiring additional staff is not the answer to every department's staffing dilemma, but he gives the practice its due credit when wrote: "In tight or emergency budget conditions, constant staffing has been a life ring to grab on to" (Martin, 2008).

As was noted previously, one of the strengths of the Constant Staffing Model is the ability to ensure that only the exact number of personnel needed to operate were on duty, thereby eliminating the problem of overstaffing (UFLAC, 2009). That same strength was identified by the auditor in San Diego's BPR study, who noted that the number of vacancies fluctuates and constant staffing prevented having extra staff on duty when staffing shortages are low (City of San Diego, 2008).

There are other views on the use of overtime rather than hiring additional personnel. The auditor for the City of Mesa, Arizona concluded that a hybrid system that included a pool of additional firefighters to cover some of the vacancies as well as the use of overtime to augment the additional staff was the most appropriate option (City of Mesa, AZ, 2008). Whereas, the auditor for Anne Arundel County (MD) concluded that the county should hire the additional firefighters necessary to cover the staffing shortages, citing the need to decrease the county's reliance on overtime and to reduce the fatigue among the fire department's workforce (Hartley, 2004). To the extreme, the City of San Rafael, California reported on the savings to their General Fund budget by the elimination of employees as part of the implementation of a Constant Staffing Model (City of San Rafael, CA, 2005). What was noteworthy was that there were no other references to the practice of eliminating staff to implement the Constant Staffing Model.

Would the operational staff support using overtime personnel in lieu of hiring additional firefighters to fill staffing shortages?

The literature search for this research question had to be more abstract as the foundation of the question was specific to OFD's operational staff. One item of relevance identified through

the research was that employees desire overtime for a number of different reasons (Reed, N.D.; Bigler, 2002). Some firefighters want to earn additional income to raise their standard of living and enjoy tangible things that they could not afford on their base salary alone, whereas others may need to earn additional income to cover personal expenses associated more with family obligations (Reed, N.D.). For many entry-level employees, working extra shifts may be the only way to make ends meet (Bigler, 2002).

Based on the many news articles that highlight firefighter overtime pay, it is clear that there are plenty of firefighters that enjoy the additional income from overtime and for that reason freely accept it when it is available (Reference for Business, N.D.; Santana & Campbell, 2009; McGreevy, 2003; Krandel, 2009; Estus, 2009). By accepting regular overtime shifts, firefighters can increase their annual earnings considerably. In fact, some Oklahoma City, Oklahoma firefighters bumped their earnings by more than 20 percent (Estus, 2009). Shockingly, the Oklahoma City figure is dwarfed by the report in the *LA Daily News* that in 2008, several personnel with the Los Angeles City Fire Department made between \$150,000 and \$175,000 in overtime alone (Krandel, 2009).

Some of the research points out or alludes to the belief that firefighters like being able to supplement their incomes with overtime (Santana & Campbell, 2009; Krandel, 2009; McGreevy, 2003; Estus, 2009; City of Stillwater, OK, 2008). Caution must be exercised, however, when overtime becomes a fundamental part of the staffing process, so that if or when there is a plan to reduce or eliminate overtime, those employees who have come to enjoy it or even depend on it can prepare themselves accordingly (Reference for Business, N.D.).

A second relevant finding was the importance of voluntary overtime versus mandatory overtime. In an article written to help business leaders decide when to use overtime, there was a clear understanding that overtime is an effective business strategy when the employees are voluntarily willing to work the additional hours (Reference for Business, N.D.). This information seems to be a reasonable conclusion based on the many other negative articles related to mandatory overtime. Common issues associated with mandatory overtime include a drop in morale, increased use of sick leave, reduced productivity, hostile work environment, and employee turnover (Golden & Jorgensen, 2002; Reference for Business, N.D.; United Steel Workers, N.D.; Emergency Nurses Association, 2006).

Given that information, it stands to reason that the degree of impact each type of overtime (voluntary and mandatory) has on the organization is critical for driving the level of support the staffing model receives—more mandatory overtime equates to less support from the organization; therefore, the more employees willing to work overtime, the fewer number of times that mandatory overtime is required. There are a number of reasons that some firefighters don't work overtime, including but not limited to: travel distance, other outside employment, the need for time off (City of Stillwater, 2008). Having an awareness of how much overtime the employees desire will help gauge how much mandatory overtime will be needed to maintain the necessary staffing, and will ultimately help predict whether implementing a Constant Staffing Model will solve problems or create new ones.

What are the public relations costs of using overtime personnel in lieu of hiring additional firefighters to fill staffing shortages?

Hefty overtime bills for local governments are easy targets for the media and others focused on taxpayer liabilities. The research yielded numerous articles with headlines and content that negatively portrayed firefighters as opportunists, and practices like constant staffing as being wasteful spending and mismanagement. From this researcher's point of view, the media made the firefighters out to be thieves, and city and fire department officials as accomplices who look the other way. The *LA Daily News* reported: "taxpayer advocates call the ballooning overtime bill a 'racket' designed to enrich firefighters at taxpayer expense" (Krandel, 2009).

The *Los Angeles Times* was quick to make readers aware of just how much some Los Angeles City firefighters made in overtime and in total earnings. The paper printed findings from a study that "found that 15 firefighters and inspectors earned more last year than Mayor James K. Hahn's \$179,700 salary, as did dozens of command officers in the Fire Department" (McGreevy, 2003). The article went on to report that "The highest-paid firefighter reported \$86,718 in base pay last year and \$137,775 in overtime, boosting total compensation to \$224,493" (McGreevy, 2003). The *LA Daily News* made its readers aware that "56 firefighters earned at least \$100,000 in overtime on top of their annual salaries last year" (Krandel, 2009).

Other articles draw a comparison to illustrate the scope of the issue or give some indication that it is the firefighters who are to blame. In an article pulled from *The Oklahoman*, Estus (2009) wrote: "Oklahoma City firefighters collected more than \$7.3 million in overtime during the past year—more than the city is spending to build three new fire stations". The *Orange County Register* reported that a primary reason that overtime spending rose so dramatically was that the increase in firefighter pension benefits increased the cost of hiring new employees to a point that made using overtime the most affordable option (Santana & Campbell, 2009).

Along with taking aim at individual fire department personnel, the media draws in government management and fire department administrators by presenting overtime strategies as uncontrolled waste. Krandel (2009) wrote: “Overtime pay for the Los Angeles Fire Department soared 60 percent over the last decade while its ranks grew just 17 percent, but there is no real effort to rein in the expenses despite the city’s budget crisis, a Daily News analysis found”. The headline of the article in the *Orange County Register* reads “Officials defend firefighter overtime of \$28 million” (Santana & Campbell, 2009). This headline alone sets the tone for an issue that, from an ordinary taxpayer’s point of view, doesn’t seem defensible.

The use of overtime is an issue that sometimes creates tension between elected officials and appointed officials. In Los Angeles, a city councilor, who is also a member of that council’s Budget and Finance Committee, does not believe the overtime is necessary nor is it the cheapest way to provide service (Krandel, 2009). A city councilor in San Diego referred to the fire department overtime budget as his city’s “example of Wall Street excesses” (De Clercq, 2009). In the article from *The Oklahoman*, Estus (2009) highlighted the fact that tension surrounding the overtime issue is old and deeply rooted when he wrote: “Oklahoma City Council members have grumbled for years about what some call excessive overtime paid to firefighters at taxpayer expense. The budget crunch the city now faces has intensified those sentiments”.

The losses fire departments experience in terms of public support and sentiment should not come as a surprise. It stands to reason that some firefighters are going to earn a lot of money each year following the implementation of a staffing model that offers a great deal of opportunity for overtime. Earley (2001) noted in his research that issues will emerge whenever firefighters become the highest paid government employees. In the City of San Diego’s PBR study, the auditor referenced the predictability of the attention to their overtime budget (City of San Diego,

2008). The auditor who conducted the audit for the City of Berkley summed it up effectively when she wrote: "...we knew that the costs were significant, and that public interest was high. We also knew that there were widespread misconceptions about the cost of overtime" (Hogan, 2009).

Such public attention and subsequent scrutiny requires government and fire department officials to respond in defense of their budget saving strategies. The responses to the scrutiny vary from offering the most basic explanation of why the overtime is necessary to offering no details, other than to say that no changes to policy are forthcoming. According to the *Orange County Register*, OCFA officials explained that "overtime is necessary to fully staff fire stations around the clock", while the OCFA fire chief made it even clearer when he was reported to have said that "we either have the overtime to cover time off, or we shut the engine down" (Santana & Campbell, 2009). In Los Angeles, the response by officials to the criticism was a generic statement that it is cheaper to use overtime than to hire new firefighters because each new employee costs at least \$100,000, yet they offered no comparative data (Krandel, 2009). In that same article, the Mayor of Los Angeles provided nothing more than a statement that indicated he was not planning on changing the current practice (Krandel, 2009).

The research would be remiss if it did not acknowledge that open criticism is also an opportunity to educate the public or, in the least, place a positive spin on the issue. An effective example of this is found in the *Orange County Register* article where it reads: "'We should appreciate the fact they're willing to put in the extra hours to keep fire engines in service in their community,' said Joe Kerr, union president for the Orange County Professional Firefighters. 'I don't think that people realize how many hours firefighters put in'" (Santana & Campbell, 2009). In this case, the union president took advantage of the opportunity to emphasize the dedication of

the firefighters and make readers aware of just how many hours firefighters have to work to earn the high amounts of overtime that the media brings into question.

Is there a risk to the health and safety of overtime firefighter(s), other on-duty firefighters, and the public when overtime staff is used to fill staffing shortages?

The literature supports the opinion of many that the use of overtime employees increases the risk to health and safety, family harmony, and product quality. According to the Economic Policy Institute (EPI), approximately one-third of the workforce in the U.S. works more than the typical 40-hour work week; yet, while the additional work hours helped shore up U.S. productivity, they come at a cost to both employees and employers (Golden & Jorgensen, 2002).

Workers often desire to work additional hours for a variety of reasons (as was noted earlier). If those reasons are a source of stress for the worker wanting the overtime, then he or she may already be distracted, if not overwhelmed (Reed, N.D.). The downside of having employees work overtime is the increased risk to worker and public safety because of fatigue and abnormal eating and sleeping patterns (Earley, 2001; McGreevy, 2003).

Of the literature reviewed during the research, the problems related to fatigue were identified most frequently. Fatigue was noted as the cause for more than \$100 billion in accident damage, related healthcare costs, and lost production, and has been determined as either the cause or contributing factor in the following major incidents: Three Mile Island, Exxon Valdez, Chernobyl, Union Carbide, and Challenger (Morgan, 2008).

The healthcare field, in which the fire service is a major stakeholder, considers fatigue—primarily from mandatory overtime—a critical risk to patient care. In a White Paper on mandatory overtime written by the Emergency Nurses Association, the author cited a previous

study by the American Federation of State, County and Municipal Employees that attests to the unfavorable impact of fatigue and its relationship with mandatory overtime (Emergency Nurses Association, 2006). EPI cited a previous study by the American Journal of Public Health which concluded that nurses who worked variable shifts, including mandatory overtime, were twice more likely to report an accident, error, or omission than those nurses who worked standard hours (Golden & Jorgensen, 2002). EPI's report concluded that the increased error rate was associated with decreased attention and increased reaction time (Golden & Jorgensen, 2002).

A contributing factor to the relationship between overtime and employee fatigue is the amount of notice employees receive prior to working additional hours (United Steel Workers, N.D.). According to a study by the National Institute for Occupational Safety and Health (NIOSH), employees are more likely to rest in preparation for the longer work hours if they receive prior notice; whereas employees are less likely to be physically prepared for the additional hours when they are given little to no prior notice (United Steel Workers, N.D.).

The healthy balance between work and home becomes jeopardized when overtime forces a greater emphasis on work and less on the family; thus, those tasked with working the longer hours become openly vulnerable to stress, fatigue, and personal conflict (Golden & Jorgensen, 2002). A study by Cornell University found that there was a higher incidence of family-related conflict in employees who worked more than ten hours of overtime a week (Reference for Business, N.D.).

Excessive and/or mandatory overtime becomes burdensome, and often disrupts employees' lives; particularly when employees don't know how long any given workday will last (Bigler, 2002). The article in the *Orange County Register* noted that one firefighter

acknowledged that even though firefighters enjoy the overtime, too much overtime absolutely affects one's family (Santana & Campbell, 2009).

Procedures

The topic of the research and the related research questions were selected because of the need to build and staff additional fire stations so that fire protection and ambulance service meets the growing needs of the city and its environs, and because of the struggle for budgetary resources to keep up with the demands of the community. Research for this project included: (a) a literature review to identify any previous work on comparing the fiscal benefits of the Constant Staffing Model over the Overstaffing Model, as well as information on any corollary impacts of using overtime in lieu of hiring additional personnel that could significantly impact the project's final conclusion; (b) a data analysis utilizing historical data and current payroll information to develop cost projections for several different scenarios, and to develop a comparative summary as to the cost benefit for each scenario; (c) an employee survey related to working additional overtime to better gauge the amount of voluntary overtime versus mandatory overtime to be considered; and (d) an employee questionnaire to help establish a level of understanding as to which staffing model the organization is willing to support.

Both historical and evaluative research was used for this project. Historical research included reviewing city documents related to staffing, employee leave (vacation, sick, and holiday), payroll and benefits, and any applicable policies related to the subject covered by the most current version of the Collective Bargaining Agreement between the city and the firefighter's union. Evaluative research was used to analyze historical and projected data (obtained through document reviews, surveys, and questionnaires) to identify which staffing

model is the most cost efficient for the City of Owasso. This information was considered, along with information obtained through the literature review and the questionnaires to draw a conclusion as to which staffing model is the most appropriate for the city going forward, and to develop recommendations related to the findings of the research.

Procedures for the Literature review

As the principle question was to identify the most appropriate staffing model, rather than the most cost effective staffing model, the research questions had to identify other dimensions of the subject that were not directly related to budgetary resources. The literature review included resources obtained through the Learning Resource Center at the National Emergency Training Center in Emmitsburg, Maryland, the Internet, OFD's Fire Training Library, and personal communication with a Human Resources Analyst employed by the City of Owasso. Of relevant interest to the research was information that provided a better understanding of employee hiring costs, historical experience of using the Constant Staffing Model, support for the Constant Staffing Model, and the impact of the Constant Staffing Model on public relations, health and safety, and product quality.

Primarily, the literature obtained in the search included applied research papers from other Executive Fire Officer (EFO) students, non-EFO papers, independent research articles, and journal and newspaper articles. Other material was reviewed, but was either found to be irrelevant to the research, or was found already referenced in one of the cited documents included in the literature review section. Information was reviewed based on identifying the various conclusions or findings of the authors; however, because the research questions sought to

identify the aggregate dimensions of the subject, the number of opposing views within the subject of each question was noticeably limited.

Procedures for Data Analysis

The intent of the data analysis was to be able to compare the cost of one staffing model against the other. In order to reach that point, a great deal of research had to be accomplished to build a database of historical and projected information.

The historical data collected included the following:

1. Employee name. The employee names were used as the primary identifier in the projection scenarios.
2. Employee seniority number. This number was used to identify each employee's opportunity at working overtime. As the current system of selecting overtime is seniority-based, the employee with the most seniority (designated as #1 in this category) always has the first option to accept or decline an overtime opportunity, followed by the employee with the next most seniority, etc.
3. Shift. The employees' shift assignment was used to help project the available staff for overtime opportunities.
4. Hourly pay rate for each employee as of December 1, 2009. Each employee's hourly pay rate was used to calculate their hourly overtime rate.
5. Hourly overtime pay rate for each employee as of December 1, 2009. The employees' overtime rates were used to determine the cost for each overtime scenario.

6. Number of vacation hours earned annually per employee during Calendar Year 2007, 2008, and from January 1, 2009 through December 1, 2009. The number of vacation hours earned annually was used to calculate the total number of hours that must be covered by overtime personnel using the Constant Staffing Model.
7. Percentage of annually-earned vacation hours taken (per employee) during Calendar Year 2007, 2008, and from January 1, 2009 through December 1, 2009. This figure was used to project the total number of hours that must be covered by overtime personnel using the Constant Staffing Model.
8. Number of sick hours earned annually per employee during Calendar Year 2007, 2008, and from January 1, 2009 through December 1, 2009. The number of sick hours earned annually was used to calculate the total number of hours that must be covered by overtime personnel using the Constant Staffing Model.
9. Percentage of annually-earned sick hours taken (per employee) during Calendar Year 2007, 2008, and from January 1, 2009 through December 1, 2009. This figure was used to project the total number of hours that must be covered by overtime personnel using the Constant Staffing Model.
10. Number of hours of operational overtime each employee worked in Calendar Year 2007, 2008, and from January 1, 2009 through December 1, 2009. This figure was used to determine what percentage of operational overtime each employee worked during 2007, 2008, and 2009.
11. Percentage of operational overtime each employee worked in Calendar Year 2007, 2008, and from January 1, 2009 through December 1, 2009. This figure was used to

project the amount of overtime each employee would be willing to work in Calendar Year 2010.

Projected information used in the data analysis included:

1. Projected use of vacation hours in 2010 (per employee) based on a three-year historical highest. This figure was used to project the total number of hours that must be covered by overtime personnel in one of the overtime scenarios.
2. Projected use of sick hours in 2010 (per employee) based on a three-year historical highest. This figure was used to project the total number of hours that must be covered by overtime personnel in one of the overtime scenarios.
3. Projected use of vacation hours in 2010 (per employee) based on a three-year average. This figure was used to project the total number of hours that must be covered by overtime personnel in one of the overtime scenarios.
4. Projected use of sick hours in 2010 (per employee) based on a three-year average. This figure was used to project the total number of hours that must be covered by overtime personnel in one of the overtime scenarios.
5. Projected percentage of operational overtime each employee is willing to work in 2010 based on a three-year historical highest. This figure was used to determine the distribution of projected overtime based on each employee's highest percentage of operational overtime worked (annually) for Calendar Year 2007, Calendar Year 2008, and the first 11 months of Calendar Year 2009.

6. Projected percentage of operational overtime each employee is willing to work in 2010 based on a three-year average. This figure was used to determine the distribution of projected overtime based on each employee's average percentage of operational overtime worked (annually) for Calendar Year 2007, Calendar Year 2008, and the first 11 months of Calendar Year 2009.

Personnel records were used to determine seniority number, hourly pay rate, number of vacation leave hours earned annually, and number of sick leave hours earned annually for each employee. This information, along with employee names and shift assignments were entered into a spreadsheet. Each employee's pay rate was multiplied by 1.5 to determine their respective overtime pay rate. This data established the necessary personnel information that was up to date as of December 1, 2009.

Again, personnel records were used to determine the historical data related to each employee's usage of vacation leave hours and sick leave hours for the study period (Calendar Years 2007, 2008, and the first 11 months of 2009 [which, for the sake of brevity, will be referred to as 2009 or Calendar Year 2009 from this point forward in the report]). This data was entered into a spreadsheet, and the data was used to calculate percentage of leave used for each year. The percentage of leave used for each year was used to identify the three-year historical highest percentage and the three-year average percentage for each employee. These same steps were used with overtime data to establish each employee's percentage of overtime worked over the three-year period, three-year historical highest and three-year average. Each of these figures was used to develop overtime scenarios that projected staffing shortages differently; thus providing for additional comparative analysis.

Scenarios

Four overtime scenarios were developed to provide enough comparative analysis to make an informed conclusion about any fiscal benefit of switching to a Constant Staffing Model. Two of the scenarios were projection-based using each employee's three-year historical highest and three-year average figures in separate scenarios. The third scenario was projection-based using the previous year as the primary indicator of an employee's current needs and behaviors. The final scenario is a worst case scenario that includes a number of highly unlikely factors and assumptions, which makes the scenario possible but improbable.

The scenarios are based on OFD using the Constant Staffing Model to operate four stations, with a minimum staffing policy of three firefighters at each station, and one shift commander, for a total of 13 personnel on duty each day. The scenarios take in to account the department's current staffing roster of 14 uniform employees assigned to each operational shift, as well as the policies on limiting the number of personnel on vacation to three per day, selecting overtime based on seniority (by time on the department), and limiting the number of consecutive hours worked to 48 (excluding disasters). For the purpose of this analysis, an assumption is made that the 48 consecutive hours will be followed by 24 hours off duty; however, that requirement is not clearly identified in current policy. To account for the overstaffing of one extra firefighter on each shift (referred to as the 14th Firefighter Factor), the amount of leave to be covered by overtime for each shift was reduced by 2,928 hours (1 firefighter x 24 hours per shift x 122 shift days per year). Therefore, for these scenarios, every leave hour taken (or projected to be taken) requires one overtime hour to cover.

The first scenario projected the total number of vacation and sick hours each employee will use in Calendar Year 2010 based on their highest usage rate over the past three years. Those figures were used to project the number of hours that must be covered by overtime across all three shifts for 2010. (See Table #1) The scenario was run using the total number of hours for all shifts combined. As it is possible for an employee to work as many as 2,928 hours of overtime (by policy) and, based on the projections in this scenario no employee would work that amount of overtime, it was not statistically necessary to run a scenario for each shift.

Using the seniority-based system for selecting/granting overtime, the scenario assumes that the most senior employee (by time on the department) would work overtime in 2010 at the same rate as their historically highest annual rate over the last three years. As an example, if Firefighter X worked 8% of the available overtime in 2007, 3.5% in 2008, and 7% in 2009, then the scenario assumes that Firefighter X will work 8% of the available overtime in 2010. This process was repeated until all of the projected overtime hours for 2010 were assigned.

The projected cost for each employee with assigned overtime hours was calculated by multiplying the number of projected overtime hours and their respective overtime pay rate. The projected total cost of the scenario was identified by adding together each employee's individual projected cost. The projected total cost was used to compare the cost of the Constant Staffing Model to the cost of hiring additional firefighters given the assumptions and factors related to the '3-Year Historical Highest' scenario.

The second scenario projected that in 2010 each employee will use their leave hours and work overtime at rates equal to the average of their annual rates over the past three years. The factors related to staffing, overtime selection, and the 14th firefighter were applied to this

scenario. The steps in this scenario are identical to the steps in the first scenario (3-Year historical highest); the only variable that changed the outcome was the different percentage calculated for each employee's leave usage rate and overtime worked rate. The projected total cost was used to compare the cost of the Constant Staffing Model to the cost of hiring additional firefighters given the assumptions and factors related to the '3-Year Average' scenario.

The third scenario projected each employee would use their leave hours and work overtime at a rate equal to the previous year (2009). This scenario was selected because the employees' behaviors regarding their most recent leave usage and overtime worked may be a more accurate indicator of their behavior in 2010. As was the case in the first and second scenarios, the factors related to staffing, overtime selection, and the 14th firefighter were applied to this scenario. The steps in this scenario were the same as those in the previous two scenarios, with the differing results driven solely by the change in rates for leave usage and overtime worked. As before, the projected total cost was used to compare the cost of the Constant Staffing Model to the cost of hiring additional firefighters given the assumptions and factors related to the 'Previous Year' scenario.

The fourth scenario—the 'Worst Case' scenario—was developed to identify the costs associated with using the Constant Staffing Model when the maximum number of personnel are on vacation every shift, every employee uses 100 percent of their annual sick leave, and all of the overtime is worked by the most senior personnel in the department. This scenario also applied all of the factors related to staffing, overtime selection, and the 14th firefighter. The steps in this scenario were the same as those in the previous three scenarios. The difference was that the amount of projected time off was driven by maximums identified in policy, such as each employee accrues 216 hours of sick leave per year, and a maximum of three personnel can be off

duty on vacation leave each shift. Additionally, the scenario projected that the most senior personnel would work the maximum number of overtime possible—2,928 hours—making the scenario’s total cost as high as possible. Again, the projected total cost was used to compare the cost of the Constant Staffing Model to the cost of hiring additional firefighters given the assumptions and factors related to the ‘Worst Case’ scenario.

Cost comparisons

The data analysis also required a cost estimate for hiring a new firefighter. This data was provided by intracity correspondence from Human Resources Analyst Stephanie Solenberger (personal communication, December 8, 2009). Costs for each new employee were identified, including: annual salary for a probationary Firefighter/Paramedic; current benefit package; administrative costs, such as staff hours, testing materials, and medical screening; uniforms and personal protective equipment (PPE); and initial training costs. This data was placed in a spreadsheet and broken down to identify cost associated with the first year of employment (to include the hiring costs) and the annually recurring costs, not including any salary increases. For the purpose of the comparison, only the costs identified for the first year were used during the comparison with each of the four scenarios.

To complete the data analysis, the projected costs of each of the four scenarios was compared to the cost of hiring six new firefighters, and to the cost of hiring nine new firefighters. Six new firefighters would raise the number of personnel per shift to 16. This number represents the 13 personnel required as minimum staffing for four fire stations and one shift commander, along with three extra firefighters to cover the three vacation slots each shift. Nine new firefighters would increase the number of personnel per shift to 17, which would continue the

current practice of assigning four firefighters per station/per shift, but would result in overstaffing beyond the three allotted vacation slots per day.

A basic comparison was used to identify which of the three options (Constant Staffing, Overstaffing by hiring six new firefighters, or Overstaffing by hiring nine new firefighters) was the most cost effective. Along with identifying which option was the most cost effective, the estimated amount of savings was identified to give the reader(s) something by which they could gauge the cost savings' relative value.

Surveys and Questionnaires

A nine-question, multiple choice survey was used to gain insight as to whether or not OFD's operational staff would support the use of a Constant Staffing Model. (See Appendix A) The survey questions were intended to gather information as to: tenure in the organization; opinion on the fairness of the current overtime policy; how often they lost an overtime shift to another member with more seniority; the number of times they were required to work overtime; the amount of overtime they would like to work if it was more available; and if they would rather have more people or more overtime.

The survey was conducted at each fire station on each shift. This process allowed for a more than adequate sampling of the organization, while not inconveniencing those participating in the survey. A brief overview of the EFO program was provided to the participants, which included an explanation of the research project. The participants were educated on the two staffing models included in the research, and were allowed to ask clarifying questions prior to taking the survey.

Along with the survey, the same participants were asked to complete a ten question questionnaire that focused more on their opinions about any problems they felt would arise from using the Constant Staffing Model. (See Appendix B) The questionnaire asked questions about the participant's understanding of the Constant Staffing Model; if they thought there would be difficulty filling overtime shifts; the possibility of more mandatory overtime; creation of animosity between firefighters; burnout over time; resistance to working overtime shifts; and whether or not the firefighters' union would support it.

The participants had already listened to an overview of the research project, asked questions and discussed the issue briefly, and taken the survey. The agenda was to have the participants complete the questionnaires last so that information they had received up to that point would prompt more comprehensive responses. The questions were broadly-written to allow the participants to expand on their answers if they so desired.

Results

Results of the Literature Review

As was noted earlier as a limitation, the literature review yielded a significant amount of information, though very little of it offered contrasting opinion. In searching for articles related to the cost of hiring a new firefighter, much of the literature referred to the cost as salary and benefits, with others noting the rising cost of pensions and retirement plans as the reason the cost of hiring new firefighters is so restrictive. Earley (2001) and Solenberger (personal communication, December 8, 2009) were more specific about some of the costs that often go overlooked, such as staff hours (in-kind costs), overtime for testing, advertising, and recruitment to name a few.

The literature supported the fiscal benefit of the Constant Staffing Model. Much of the information reviewed related to larger fire departments in California; however, the information regarding the principles of the Constant Staffing Model (Martin, 2008) made it a reasonable conclusion that the model is adaptable to most departments, though the fiscal benefit would vary. In several cases identified in the literature—Los Angeles, CA, San Diego, CA, Orange County, CA, and Anne Arundel, MD—the Constant Staffing Model was identified by the respective municipal auditors as the most cost effective staffing strategy (McGreevy, 2003; Hartley, 2004; City of San Diego, 2008; Santana & Campbell, 2009; Hogan, 2009).

Looking for literature on support from the workforce was somewhat challenging as the intent of the research question was to identify the level of support among OFD's operational staff. The information drawn from the literature was very relevant in terms of understanding the limits of overtime-based staffing strategies; in particular, understanding the limits of the workforce. There are many reasons why workers desire overtime. Some workers want it while others need it. Regardless of the circumstance, when overtime is desired by the workforce, researchers conclude it will be well received and well supported (Golden & Jorgensen, 2002; Reference for Business, N.D.; Reed, N.D.; Estus, 2009). When overtime is mandated, it is resisted by the workforce (Bigler, 2002; United Steel Workers, N.D.; Emergency Nurses Association, 2006; Reference for Business, N.D.); thus, being aware of how much mandatory overtime would be required to meet an organization's staffing needs is critical for predicting whether or not an overtime-driven staffing strategy would garner support (Reference for Business, N.D.).

A review of the literature clearly points out that high overtime budgets equate to a loss in an organization's public image. Media is quick to bring the issue to the public, and to portray

firefighters as opportunists. Government officials and fire department administrators alike have to defend their use of overtime in the midst of a recession. From taxpayer advocacy groups to elected officials, the community is balking at what appears to be a fleecing by firefighters. While the auditors may have certified the practice as efficient public policy, the literature indicates that it was/is not a popular strategy with the general public.

The search for information related to the health and safety risks associated with overtime yielded numerous results. The literature supported the opinion that fatigue is a common consequence of working additional hours (Earley, 2001; Morgan, 2008; Reed, N.D.; Emergency Nurses Association, 2006). In fact, the literature was entirely one-sided, and the conclusions taken from the literature relating to the causal effects of fatigue on increased accidents, decreased job performance, and provocation of personal turmoil appeared uncontested.

Results of the Data Analysis

The results of the data analysis, in particular the comparative analysis using the four different scenarios, were not surprising based on the information identified in the literature review. The fiscal benefit was clearly noted in each projection-based scenario where the factors were reasonable and the outcome was within the scope of consideration.

Scenario #1

The first scenario—3-Year Historical Highest—used each employee's highest annual percentage of leave usage (vacation and sick) over three years to project their leave usage in 2010. The projected number of hours for each employee was added together to determine the total number of leave hours. The total number of projected leave hours used in 2010 was 20,534.

That number was reduced by 8,784 hours, which is the '14th firefighter factor' of 2,928 applied to each shift's leave total. The adjusted total number of leave hours was 11,750.

The 3-Year Historical Highest was also used to determine what percentage of available overtime each employee would work in 2010. Each employee's highest annual percentage of overtime worked over the three year period was used to project the amount of available overtime (11,750 hours) they would work in 2010. The highest percentage was identified at just over 12% (Driver Jennings); however, based on the assumptions of the scenario, he was too far down on the seniority list to work all 12%. Based on the percentages identified and the department's seniority list, the overtime was distributed among the top 23 personnel. According to the scenario's projections, the employee with the most seniority, Battalion Chief Sole, would work 9.3% of the overtime available (1093 hours) at a cost of \$45,447. The total cost of the overtime in the 3-Year Historical Highest scenario was \$373,514.

Scenario #2

The second scenario—3-Year Average—used the average of each employee's annual leave usage (vacation and sick) over the last three years to project their leave usage in 2010. The projected number of hours for each employee was added together to determine the total number of leave hours. The total number of projected leave hours used in 2010 was 15,901. That number was reduced by 8,784 hours, which is the '14th firefighter factor' of 2,928 applied to each shift's leave total. The adjusted total number of leave hours was 7,117.

The 3-Year Average was also used to determine what percentage of available overtime each employee would work in 2010. The average of each employee's annual percentage of overtime worked over the three year period was used to project the amount of available overtime

(7,117 hours) they would work in 2010. The highest percentage was identified at just over 11% (Driver Jennings), and the lowest was 0% (Captain Morton) who had not worked any operational overtime in the three year period. Based on the percentages identified and the department's seniority list, the overtime was distributed among 40 of the department's 42 operational staff. According to the scenario's projections, the highest overtime earner would be Driver Jennings, who would work 11.03% of the overtime available (785 hours) at a cost of \$20,371. The total cost of the overtime in the 3-Year Average scenario was \$202,191.

Scenario #3

The third scenario—Previous Year—used the percentage of leave (vacation and sick) used in 2009 as the predictor for leave used in 2010, based on the most recent behaviors having a greater likelihood of being repeated. The projected number of hours for each employee was added together to determine the total number of leave hours. The total number of projected leave hours used in 2010 was 17,281. That number was reduced by 8,784 hours, which is the '14th firefighter factor' of 2,928 applied to each shift's leave total. The adjusted total number of leave hours was 8,497.

The Previous Year assumptions were also used to determine what percentage of available overtime each employee would work in 2010. Each employee's percentage of available overtime worked in 2009 was used to project the amount of available overtime (8,497 hours) they would work in 2010. The highest percentage was identified at 9.3% (Battalion Chief Sole), and the lowest was 0% (Captain Morton) who did not work any operational overtime in 2009. Based on the percentages identified and the department's seniority list, the overtime was distributed among 40 of the department's 42 operational staff. According to the scenario's

projections, Battalion Chief Sole would work 790 hours of available overtime at a cost of \$32,848. The total cost of the overtime in the Previous Year scenario was \$254,622.

Scenario #4

The fourth scenario—Worst Case—assumed that three personnel are on vacation leave every day during 2010, all operations personnel use 100% of the sick leave earned during the year (216 hours), and that the overtime is distributed among the top 11 senior operational staff. The projected total number of vacation leave hours was calculated to be 26,304. The projected total number of sick leave hours was calculated to be 9,072. The total number of projected leave hours used in 2010 was 35,376. That number was reduced by 8,784 hours, which is the ‘14th firefighter factor’ of 2,928 applied to each shift’s leave total. The adjusted total number of leave hours was 26,592.

The Worst Case assumption used to determine what percentage of available overtime each employee would work in 2010 was that each employee would work the maximum number of available overtime possible. Based on the current policy that no employee may work more than 48 consecutive hours (assuming they remain off duty for 24 hours before returning to work), the maximum number of overtime hours any employee can work is 2,928. There were six employees who were identified working 2,928 hours of available overtime. Three employees were identified as working 2,904 hours of overtime. The remaining two employees were shown to work 216 and 96 hours of the overtime remaining. According to the scenario’s projections, the top overtime earner (Battalion Chief Sole) would work 2,928 hours of available overtime at a cost of \$121,746. The total cost of the overtime in the Worst Case scenario was \$974,156.

Hiring costs

Costs associated with hiring new firefighters in the City of Owasso were identified and categorized based on whether they were one-time costs associated with the hiring process, or recurring costs associated with salary and benefits or other annually-occurring expenses. The analysis identified that the one-time costs related to recruiting, testing, and hiring totaled \$8,585. This figure included in-kind costs (staff hours) and overtime for testing and interviewing. Initial training also accounts for \$5,000 in one-time costs.

Salary and benefits were found to be recurring costs to the city. The starting salary for a probationary Firefighter/Paramedic was \$45,136, and the various benefits totaled \$25,275. Annual uniform expenses are \$450, and PPE costs approximately \$2,000. Because PPE must be replaced regularly, \$500 per year for PPE was used to evenly account for the ongoing expense. The total cost for the first year—hiring costs, salary, benefits, uniforms, PPE, training—was \$86,896. The annual cost for the second year and beyond was \$71,361.

Comparative analysis

An independent comparative analysis was performed on each of the four scenarios. The comparison focused solely on the scenario's projected cost for operational overtime as compared to the cost of hiring six new firefighters (using the first year cost of \$86,896 x six positions) and compared to the cost of hiring nine new firefighters (using the same first year cost x nine positions).

In the first scenario, the three comparative costs were: Constant Staffing Model, \$313,574; Overstaffing Model with six new firefighters, \$521,376; and Overstaffing Model with

nine new firefighters, \$782,064. The least expensive is the Constant Staffing Model with a cost savings of just over \$208,000 when compared to hiring six new employees, and over \$400,000 when compared to hiring nine new employees.

In the second scenario, the three comparative costs were: Constant Staffing Model, \$202,191; Overstaffing Model with six new firefighters, \$521,376; and Overstaffing Model with nine new firefighters, \$782,064. The least expensive is the Constant Staffing Model with a cost savings of just under \$320,000 when compared to hiring six new employees, and almost \$580,000 when compared to hiring nine new employees.

In the third scenario, the three comparative costs were: Constant Staffing Model, \$254,622; Overstaffing Model with six new firefighters, \$521,376; and Overstaffing Model with nine new firefighters, \$782,064. The least expensive is the Constant Staffing Model with a cost savings of approximately \$266,000 when compared to hiring six new employees, and over \$527,000 when compared to hiring nine new employees.

In the fourth scenario, the three comparative costs were: Constant Staffing Model, \$974,156; Overstaffing Model with six new firefighters, \$521,376; and Overstaffing Model with nine new firefighters, \$782,064. While the Overstaffing Model with six new employees appears to represent the greatest budgetary savings, the six additional firefighters would not have been enough to cover all of the leave taken, and would have required an additional 9000 hours of overtime. In this case, the least expensive is the Overstaffing Model and hiring nine new firefighters with a cost savings of approximately \$190,000 when compared to the Constant Staffing Model.

Results of the Employee Surveys

Employee input was collected using nine-question, multiple-choice surveys. Input was collected over a three day period to reach operational staff on all three shifts. A total of 33 surveys were distributed, and 100% of the surveys were completed and returned. The 33 participants represent 79% of the 42 operational staff positions.

Survey Question #1: How long have you been with the Owasso Fire Department?

Of the 33 participants: four answered less than 2 years; nine answered 2-4 years; six answered 4-6 years; nine answered 6-10 years; and five answered More than 10 years. This was informative in that 11 participants (33%) had less than four years of seniority and would be the group most likely to experience mandatory overtime.

Survey Question #2: How often do you sign-up/agree to work overtime (scheduled and unscheduled) only to get “bumped” by a member with more seniority?

Of the 33 participants: zero answered Always; two answered Almost always; 13 answered About 50% of the time; eight answered Occasionally; eight answered Almost never; and two answered Never. These results were reasonable based OFD’s policy of seniority-based overtime. That only two participants answered that they never get bumped indicates that employees with very little seniority are not the only ones negatively impacted by the current overtime policy.

Survey Question #3: How often do you decide not to sign-up to work overtime (scheduled and/or unscheduled) because you’re confident you will get “bumped”?

Of the 33 participants: one answered Always; four answered Almost always; three answered About 50% of the time; eight answered Occasionally; five answered Almost never; and twelve answered Never. That more than 50% of the participants indicated they were not discouraged by the existing overtime policy, while only 15% indicated some level of discouragement, shows that the majority of the organization is not dissuaded by the current policy.

Survey Question #4: In the last three (3) years, have you been forced/required to work an overtime assignment (excluding holdover overtime) because no other member wanted to work it?

Of the 33 participants: 13 answered Yes; 20 answered No. Based on the current overtime policy, the number of participants that answered yes is far too large to be credible. Payroll records indicated there were less than ten occasions over the last three years where employees were forced to work overtime hours that were not related to holdover. The results from this question and Survey Question #5 were invalidated for the purpose of this research.

Survey Question #5: If the answer to Question #4 is yes, how many times has this situation occurred?

The results from this question were related to the previous question, which was deemed invalid based on that question's results compared to payroll data; therefore, the results from this survey question are also deemed unusable for the purpose of this research.

Survey Question #6: Do you think the current method of selecting overtime personnel is fair and equitable?

Of the 33 participants: 17 answered Yes; 16 answered No. That the opinions of the participants were very balanced indicates that there were almost as many operational staff willing to change the policy as there were those who support the existing policy.

Survey Question #7: If the fire department used a staffing model that required a significant amount of overtime to maintain minimum staffing (3 at each station and 1 shift commander), what is the likelihood that you would voluntarily sign up to work overtime assignments?

Of the 33 participants: 12 answered 100% confident I would volunteer to work overtime assignments; eight answered Very likely I would volunteer to work overtime assignments; ten answered Likely I would volunteer to work overtime assignments; three answered Not likely I would volunteer to work overtime assignments; and zero answered No interest at all in working overtime assignments. 20 participants (61%) indicated that they were confident or highly likely to sign-up to work overtime. By comparison, only three participants indicated they had no real interest in working overtime.

Survey Question #8: If you are willing to volunteer for overtime assignments, how much overtime are you interested in working?

Of the 33 participants: two answered As much as possible/every chance I get; 13 answered A lot, but not every chance; 12 answered I will accept about as many as I turn down; five answered Not too often; and zero answered Rarely or never. These results indicate that 82% of the participants were willing to work at least 50% of the overtime offered. What is noteworthy relating to this survey question and the previous question (#7) is that no participant for either question indicated they would not work overtime if and when it was offered.

Survey Question #9: Would you rather see the fire department hire more people or use overtime to cover increased staffing needs (knowing that the additional overtime could increase your annual pay by \$10,000-\$20,000)?

Of the 33 participants: 14 answered More people; 19 answered More overtime. The results from this question point toward a desire by a majority of the operational staff to work more overtime. That 58% of the participants desire more overtime, coupled with 82% are willing to work at least half of the overtime offered indicates overtime positions should not be difficult to fill.

Results of the Employee Questionnaires

A ten-question questionnaire was used to better gauge the support of an overtime-based staffing strategy, and to draw input as to the potential problems of implementing such a model. The questionnaires were distributed to participants at the same time as the surveys. A total of 33 questionnaires were distributed, and 100% of the questionnaires were completed and returned. The 33 participants represent 79% of the 42 operational staff positions. The first two questions were worded so that a yes or no answer was all that was necessary. Some of the participants elected to respond to all ten questions with a yes or no answer, while others gave more descriptive responses.

Question #1: Do you understand the difference between the two staffing models?

All participants answered yes to this question. The participants received an overview of each model at the beginning of the meeting, and were given ample opportunity to ask clarifying questions related to the two models. That everyone understood the research subject was the anticipated result.

Question #2: Do you understand that if the fire department uses the Constant-staffing model when we open Fire Station #4, we become totally dependent on overtime to meet the

minimum staffing requirements identified in the Collective Bargaining Agreement—3 personnel at each station and 1 shift commander?

Again, and for the same reasons, all participants answered yes to this question.

Question #3: In your opinion, will the fire department have difficulty filling staffing shortages caused by vacations, sick leave, injury leave, etc.?

For this question, 11 participants answered yes, and nine participants answered no. The remaining participants offered additional information. The majority opinion of the remaining respondents was that the organization would have difficulty filling staffing shortages.

Noteworthy feedback for this question included the belief that the department would not have any problem filling shifts at first, but once the personnel got tired of working so often, the shifts would be harder to fill.

Question #4: In your opinion, do you think there will be a lot of days (excluding holidays) that no one wants to work overtime? If so, what days would be difficult to cover?

For this question, two participants answered yes, and nine participants answered no. All but two of the remaining participants offered lengthy ‘yes’ answers. One of the two dissenters from this group noted that shifts would be easy to fill initially—regardless of the day; however, as time goes on, the process will become more difficult. Noteworthy feedback included the belief that Mondays would be a difficult day to find coverage.

Question #5: Given the current policy on seniority-based overtime, do you think forcing people to work overtime would become a regular practice?

For this question, 17 participants answered yes, and eight answered no. A slight majority of the remaining participants provided more descriptive ‘yes’ answers, while the others either did not believe mandatory overtime would become a regular practice or were not sure. Noteworthy

feedback for this question was the opinion that the overtime policy should be revisited to reduce the number of times that personnel are forced to work overtime.

Question #6: Would forced overtime create animosity between fellow firefighters?

Between labor and management?

For this question, six participants answered yes, and five answered no. Of the remaining participants, seven believed it would create some amount of animosity, seven thought it was possible (but were not sure), and eight believed that it would not create animosity. Noteworthy feedback included the opinion that tension would be caused by people being tired, and that some of the participants feel that it's just part of the job.

Question #7: In your opinion, do you think the Constant-staffing model would lead to burnout among the personnel?

For this question, eight participants answered yes, and five answered no. Ten of the remaining participants felt that it would lead to burnout. Eight of the respondents thought it might or probably could lead to burnout, while two did not see burnout as a problem.

Question #8: In your opinion, would sick leave usage increase because of having to work so often?

For this question, 12 participants answered yes, and 11 answered no. Five of the remaining participants believe that sick leave would increase, while two participants did not believe that was the case. The last three participants were unsure, though two of the three thought it was likely sick leave would increase if mandatory overtime became a common practice or if it was the only way someone could get the day off. Noteworthy feedback from a

few of the respondents involved the abuse of sick leave, and how freely some employees misuse sick time.

Question #9: In your opinion, do you think people would avoid taking phone calls from the fire department for fear of being forced in to work an overtime assignment?

For this question, 22 participants answered yes, and three answered no. Of the remaining eight participants, seven believed that employees would avoid phone calls to avoid overtime. The lone dissenter simply hoped that would not be the case. Noteworthy feedback was the admittance by a few of the respondents that the practice of avoiding phone calls is already occurring.

Question #10: Do you think the opportunity to dramatically increase firefighters' annual earnings is incentive enough to gain approval and support of the members of IAFF Local 2789?

For this question, 18 participants answered yes, and four answered no. Two of the remaining participants did think the union would support such a measure, three did not believe it would be supported, three participants were not sure, and three gave answers that didn't really answer the question (though each of the three responses had value). The feedback from this question was more detailed than that of the other nine questions. Summarily, the responses acknowledged the conflict associated with supporting something that would improve the member's quality of life, yet may also jeopardize the safety of their working environment.

Summary of Results

The literature offered compelling information regarding the benefit of using overtime as a staffing strategy. The literature was equally sound in the conclusions regarding the negative effects of excessive and/or mandatory overtime on public image, health and safety,

organizational productivity, and family. While the literature reviewed for each research question lacked a large amount of contrasting opinion, the variation was established through the research questions themselves, and the results offered adequate contrast for discussion.

The use of the four scenarios in the data analysis to discover what, if any, budgetary benefit could be experienced by OFD successfully confirmed what was already suspected—it is less expensive to use overtime staff to cover leave-related vacancies than it is to hire additional firefighters. In three of the four scenarios, the Constant Staffing Model was less expensive than the Overstaffing Model, with cost savings between \$208,000 and \$320,000. In the Worst Case scenario, the nine-firefighter Overstaffing Model was the least expensive with a cost savings of approximately \$190,000.

The employee surveys were able to identify that there is a great interest among those surveyed to work a significant amount of available overtime. There is also a large segment of the workforce, though not quite the majority, which believes the current overtime policy should be revisited. Also, according to the results, 58% of the respondents would rather see increased overtime shifts rather than hiring new personnel.

Results from the employee questionnaires indicated that while the majority of the participants felt that the union would support an overtime-driven staffing model, there is considerable skepticism about the lifespan of such a strategy. The responses tended to lean toward the potential for problems associated with depending on overtime to meet staffing demands. Difficulty filling staffing shortages, mandatory overtime, employee burnout, increased sick leave, and animosity among the staff were identified as areas of concern for implementing an overtime model.

Limitations of the Applied Research Project

The literature search found a significant amount of information for four of the five research questions. The information reviewed lacked a comfortable amount of opposing view, indicating either the research/ published opinions regarding each question's subject was impeccably well-established, or the depth of the literature search was too shallow.

The data analysis component of the research primarily used information—facts, figures, policies, etc.—which are specific to the City of Owasso and OFD. The research was intended to answer question(s) that may assist OFD with future planning. While the research subject may be relevant to other departments across the U.S., these departments may not find the analytical methodologies applied in this research useful or applicable.

Discussion

Owasso, like so many other cities across the U.S., struggles to deal with growth, and with the impact of an on-going recession. The challenge is not a new one, nor is it unique to Owasso. It stands to reason that few cities have the economic engine to keep up with expanding service needs of a rapidly growing population. Strategic plans are written and implemented which map communities' road to effective services, including physical and human resource requirements. Often, the plans offer cost projections; yet, rarely, do the plans incorporate the funding mechanism. That said, in a periodic downturn in the economy, or in this case a recession, there is no funding to grow government; thus, such well-laid strategic plans grow out-of-date or fail from fiscal starvation. In the case of Owasso, and OFD's need to grow, the goal is to find budgetary opportunities that enable critical plans to remain on target and on time.

Through years of administrative experience, the researcher determined that difficult times prompt difficult choices, most of which involve money and people. What frames the problem is the enduring need to better protect the community that already exists, and the delayed funding needed to provide that protection. The purpose of the research was to find out if the Constant Staffing Model would provide a less-costly solution to staffing the fourth, and eventually the fifth fire stations. The research questions were developed to find out if the Constant Staffing Model would provide any cost savings, and to identify other characteristics about the model that would help determine if it was the most appropriate staffing strategy for OFD.

The literature review concentrated on the five subjects of the research questions: (1) cost of hiring new firefighters; (2) fiscal benefit of using overtime in lieu of hiring additional firefighters; (3) support for an overtime-based staffing model; (4) public relations costs of using overtime; and (5) risk to health and safety by using overtime. The search for literature yielded an adequate amount of research material related to each of the five subjects; however, there were not as many contrasting views as one would expect. The researcher opined that the desired contrast was achieved through the scope of the five research questions.

When trying to identify the complete cost of hiring a new employee, in this case a firefighter/paramedic, an individual must recognize the somewhat hidden costs that go overlooked in most comparative analysis. Practically every cost comparison uses annual salary and benefits to determine the annual cost of a new employee. Most costs unaccounted for are found at the beginning of the hiring cycle, including the advertising and recruitment costs, and all of the staff hours and overtime associated with the project. Testing materials, renting space to use as a testing site, background checks, medical screening, and postage are all examples of ancillary costs that may go overlooked. Uniforms and PPE have some measure of recurrence, so

along with the initial cost of those items is an annually budgeted amount that accounts for the replacement value of the items.

The fiscal benefit of using overtime rather than hiring new firefighters to fill staffing shortages is evident based on the amount of literature that supports the finding. Numerous fire departments in California have demonstrated the fiscal efficiency of maintaining just enough full-time staff to meet the daily staffing requirements; using overtime personnel to cover short term vacancies created by vacation and sick leave. Much of the literature used in the research was authored by an auditor, or included some statement by an auditor validating the efficient practice.

The amount of available overtime in the Constant Staffing Model and other overtime-based staffing models is one of the primary selling points for garnering support from within the organization. The research indicated that there are numerous reasons that employees desire overtime, from improving their quality of life to just holding on to what they have. The literature noted that the reason employees want to work overtime is not as valuable as knowing how much they want to work. The amount of voluntary overtime available to employees versus the amount of mandatory overtime forced on employees drives the level of support such staffing strategies received from the workforce.

The research offered a humbling contrast to the benefits of having overtime available for the employees benefit. Fire departments across California that depend of overtime to meet staffing demands demonstrated that such a strategy is quite costly in terms of public image. News article after news article pummeled the image of their local firefighters with words that portrayed them opportunist—public servants getting paid embarrassingly high amounts of money

for overtime in a time where both government and citizen alike are struggling financially. The issue even has elected officials making claims of wasteful, uncontrolled spending by fire officials. The issue was so distracting that government and fire officials were forced to defend their actions. In reviewing the literature, the common theme was that the explanation was found later in the articles, perhaps too far back in the story to repair any damage. Ultimately, the explanation of why overtime was the most cost effective practice was overshadowed by the first few paragraphs of each article where the names, salaries, and overtime earnings of firefighters (some of which were over \$100,000 in overtime alone) were listed. What was evident in the literature was that high overtime budgets will get the public's attention, and the media will not be kind.

The last part of the literature review considered the question of whether or not firefighters and the public were more at risk when a department uses overtime personnel to fill staffing shortages. Of the five areas researched, the literature in this search yielded the most influential information. Several sources connected excessive overtime with fatigue. Fatigue has been shown to be a contributing factor in occupational accidents/injuries, lost productivity, decreased morale, and increased personal conflict. Sources founded in the nursing profession placed a great deal of blame (for fatigue) on long hours, too few nurses, and mandatory overtime. Earley (2001) and Reed (N.D.) alluded to the opinion that by consciously allowing potentially fatigued workers to operate emergency vehicles and make split-second medical decisions, fire administrators place the public and the firefighters at risk to harm, and expose themselves to devastating liability.

In researching cost benefit, the use of scenarios to perform a comparative analysis allowed the researcher to develop a set of rules and assumptions that were within the realm of

reason, and were neither too conservative nor too liberal. The first three scenarios—3-Year Historical Highest, 3-Year Average, and Previous Year—were intended to demonstrate or disprove the efficiency of the Constant Staffing Model. The fourth scenario—Worst Case—was intended to illustrate how the model would perform using the most expensive factors and maximum leave usage. The results of all of the scenarios were as expected, based on the information derived from the literature review. For OFD, using overtime appears to be the most cost effective staffing strategy for staffing Fire Station #4. As the scenarios were built around four fire stations, any potential benefit for staffing the fifth fire station was not calculated.

The research was seeking to identify the most appropriate staffing model, and not just the most efficient. The employee surveys and employee questionnaires yielded information that proved very useful for gauging the likelihood of success in implementing an overtime-based staffing strategy such as the Constant Staffing Model. Assuming that the 33 participants provided a relatively accurate assessment of organizational opinion, then OFD could successfully operate using the Constant Staffing Model for a short time (perhaps two to three years) without much difficulty. Based on OFD's current overtime policy, the bulk of the overtime would be distributed among the top two-thirds of the organization; however, anyone who desired overtime would have some opportunity. As was the case in much of the literature related to the fire departments in California, some personnel would work (and earn) much more than others because of seniority, opportunity, and desire, so there would be the increased risk of having to manage negative media related to the designed use of overtime.

Following the initial few years beyond implementation, the department would likely experience increased difficulty filling overtime shifts as the effects of overworking outweigh the increase in pay; thus, the use of mandatory overtime, where personnel are forced to work

overtime against their will, would become a common practice. When the staffing strategy becomes less of a benefit to the personnel and more of a source of physical and emotional stress, the operational staff will offer resistance to the use of overtime, at which point any collaborative spirit between labor and management will go away.

When considering all aspects of the research, a staffing model—like the Constant Staffing Model—that uses overtime personnel rather than hiring additional employees to cover staffing shortages is the most efficient model to operate in terms of budget dollars. That benefit is realized purely through the savings of employing fewer personnel. Eventually, the costs associated with such a staffing model are found either in a different budget line, such as increased sick leave, or in the loss of public image and confidence, or in the increased exposure to risk and liability.

While the Constant Staffing Model may work well as a long-term strategy for some departments, this researcher concluded that as a long-term strategy for OFD it would struggle for success some years down the road, and, in fact, become a source of discontent among the workforce. The researcher also identified that there was a substantial budgetary savings to be enjoyed by using this type of staffing model, a fact that public administration cannot ignore. Given these conclusions, it also seems reasonable to consider an overtime-based staffing model as an appropriate short-term solution to funding the personnel for fire station #4, and possibly fire station #5.

Recommendations

Based on the findings of this Applied Research Project, there are six recommendations to help prepare for staffing requirements for future fire stations:

The first recommendation is to revisit OFD's Strategic Plan to include the use of the Constant Staffing Model as the short-term staffing strategy. The plan should clearly identify that the intent of the short-term strategy is to shorten the timeline for fire stations #4 and #5 by reducing the cost of staffing the facilities. The plan should also include the reasoning for not using the Constant Staffing Model as the long-term strategy.

The second recommendation is to develop a plan to transition back to the Overstaffing Model as OFD's long-term staffing strategy. The plan should be independent of the strategic plan, and dynamic enough to allow for implementation either after fire station #5 is open and operational, or after fire station #4 is opened and before fire station #5 is built. As the intent is to use the Constant Staffing Model to facilitate OFD's growth during the down economy, if the city's economy was to turn around earlier than anticipated, then the plan would allow for the transition back to the Overstaffing Model, regardless of what aspects of the strategic plan have or have not been accomplished.

The third recommendation is meet with union officials and discuss the need to modify the existing policy on how overtime is selected and assigned. The process for selecting/awarding overtime is not as much at issue as is the manner in which employees are required/forced to cover staffing shortages when no one voluntarily accepts the overtime. The information obtained from the employee questionnaires indicated that mandatory overtime could become a problem unless the mandatory work was more equitably distributed among the personnel.

The fourth recommendation is to negotiate changing how vacation leave is requested and approved. Currently, personnel can request to use vacation leave at any time during the day. This lack of notice makes it difficult for shift commanders to maintain minimum staffing without

holding a firefighter from the off-going shift, or scrambling to find a replacement in the middle of the day. By requiring personnel to request leave in advance, shift commanders are able ensure that staffing is maintained. The amount of time required for leave requests should be no less than seven days.

The fifth recommendation is to develop a plan for monitoring the impact of the Constant Staffing Model on the organization. Along with monitoring budgetary savings, the plan should include periodic reviews of the areas of concern identified in the literature: accident/injury rates, sick leave rates, ratio of voluntary overtime to mandatory overtime, and performance issues such as mistakes and lost productivity. This activity will be important for recognizing when the model is nearing the end of its effectiveness.

The sixth and final recommendation is to educate the community on the plan to use the Constant Staffing Model before the model is implemented. By making the community aware of why an overtime model is used and how much money would be saved using the plan, city and fire department officials demonstrate transparency, and avoid the shock effect of an overtime budget that would triple overnight.

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Appendix A

**NATIONAL FIRE ACADEMY—EXECUTIVE FIRE OFFICER PROGRAM—APPLIED
RESEARCH PROJECT**

INTERNAL SURVEY QUESTIONS

1. How long have you been with the Owasso Fire Department?
 - a. Less than 2 Years
 - b. 2-4 Years
 - c. 4-6 Years
 - d. 6-10 Years
 - e. More than 10 Years
2. How often do you sign-up/agree to work overtime (scheduled and unscheduled) only to get “bumped” by a member with more seniority?
 - a. Always
 - b. Almost always
 - c. About 50% of the time
 - d. Occasionally
 - e. Almost never
 - f. Never
3. How often do you decide not to sign-up to work overtime (scheduled and/or unscheduled) because you’re confident you will get “bumped”?
 - a. Always
 - b. Almost always
 - c. About 50% of the time
 - d. Occasionally
 - e. Almost never
 - f. Never
4. In the last three (3) years, have you been forced/required to work an overtime assignment (excluding holdover overtime) because no other member wanted to work it?
 - a. Yes
 - b. No

5. If the answer to Question #4 is yes, how many times has this situation occurred?
 - a. 1-3
 - b. 4-6
 - c. 7-10
 - d. More than 10
6. Do you think the current method of selecting overtime personnel is fair and equitable?
 - a. Yes
 - b. No
7. If the fire department used a staffing model that required a significant amount of overtime to maintain minimum staffing (3 at each station and 1 shift commander), what is the likelihood that you would voluntarily sign up to work overtime assignments?
 - a. 100% confident I would volunteer to work overtime assignments
 - b. Very likely I would volunteer to work overtime assignments
 - c. Likely I would volunteer to work overtime assignments
 - d. Not likely I would volunteer to work overtime assignments
 - e. No interest at all in working overtime assignments
8. If you are willing to volunteer for overtime assignments, how much overtime are you interested in working?
 - a. As much as possible; every chance I get
 - b. A lot, but not every chance
 - c. I will accept about as many as I turn down
 - d. Not too often
 - e. Rarely or never
9. Would you rather see the fire department hire more people or use overtime to cover increased staffing needs (knowing that the additional overtime could increase your annual pay by \$10,000-\$20,000)?
 - a. More people
 - b. More overtime

Appendix B

**NATIONAL FIRE ACADEMY—EXECUTIVE FIRE OFFICER PROGRAM—APPLIED
RESEARCH PROJECT**

QUESTIONNAIRE

1. Do you understand the difference between the two staffing models?
2. Do you understand that if the fire department uses the Constant-staffing model when we open Fire Station #4, we become totally dependent on overtime to meet the minimum staffing requirements identified in the Collective Bargaining Agreement—3 personnel at each station and 1 shift commander?
3. In your opinion, will the fire department have difficulty filling staffing shortages caused by vacations, sick leave, injury leave, etc.?
4. In your opinion, do you think there will be a lot of days (excluding holidays) that no one wants to work overtime? If so, what days would be difficult to cover?
5. Given the current policy on seniority-based overtime, do you think forcing people to work overtime would become a regular practice?

6. Would forced overtime create animosity between fellow firefighters? Between labor and management?
7. In your opinion, do you think the Constant-staffing model would lead to burnout among the personnel?
8. In your opinion, would sick leave usage increase because of having to work so often?
9. In your opinion, do you think people would avoid taking phone calls from the fire department for fear of being forced in to work an overtime assignment?
10. Do you think the opportunity to dramatically increase firefighters' annual earnings is incentive enough to gain approval and support of the members of IAFF Local 2789?